

crispprd 1.0



## Abstract

**Grant Number:** 5R01NR004281-06

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**PI Title:** PROFESSOR

**Project Title:** NEUROBEHAVIORAL EFFECTS OF PARTIAL SLEEP DEPRIVATION

**Abstract:** *The role of sleep in maintaining healthy, optimal waking functions, is compromised by sleep loss from illness, aging, pain, depression, and life-style. The single most pervasive form of sleep loss experienced by millions of persons for either medical or lifestyle reasons is partial sleep deprivation (PSD). This project seeks to determine how waking neurobehavioral functions sensitive to sleepiness are affected by chronic PSD. A basic unresolved question is the amount and timing of chronic PSD at which alertness and waking function are compromised. This research is specifically aimed at establishing the nature and time course (across hours and days) of deficits engendered by chronic sleep restriction, and the extent to which they reflect an interaction between the homeostatic drive for sleep and the endogenous circadian pacemaker. The project involves the first systematic laboratory controlled experiments on the effects of 14 days of PSD on neurobehavioral and physiological functions. A randomized controlled trial will be performed in which three PSD dosages (4hr, 6 hr, 8 hr, per day) are placed at three different circadian phases (time-in-bed offset at 0330hr, 1130hr, 1930hr), thereby yielding nine conditions, each of which exposes a different range of the circadian cycle to waking neurobehavioral assessment. A total of 180 healthy adults will be studied (n=20 per condition) in the laboratory for 20 days each, during which time they will undergo 14 days of sleep restriction. Assessments will be made of key outcome variables including psychomotor vigilance lapses, cognitive functions, working memory, EEG alertness, subjective sleepiness, and mood. The results of this research will provide much-needed information on current issues of intense theoretical and applied concern including particular relevance to current public policy needs for data regarding the number of hours*

*personnel in safety-sensitive occupations should have available each work day for sleep, and the number of consecutive days they should be allowed to work.*

***Thesaurus Terms:***

*attention, circadian rhythm, neuropsychology, psychomotor reaction time, sleep deprivation*

*clinical trial, emotion, memory, outcomes research*

*behavioral /social science research tag, clinical research, electroencephalography, human subject*

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